

AD-A207 043

## DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

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|---|--|--|--|
| 1b. RESTRICTIVE MARKINGS  |  | 2b. RESTRICTIVE MARKINGS   |  |
| 3. DISTRIBUTION/AVAILABILITY OF REPORT<br>Unlimited, approved for public release and sale   |  | 4. PERFORMING ORGANIZATION REPORT NUMBER(S)  |  |
| 5. MONITORING ORGANIZATION REPORT NUMBER(S)   |  | 6a. NAME OF PERFORMING ORGANIZATION<br>University of Washington                          |  |
| 6b. OFFICE SYMBOL<br>(If applicable)  |  | 7a. NAME OF MONITORING ORGANIZATION<br>Office of Naval Research                          |  |
| 7b. ADDRESS (City, State, and ZIP Code)<br>800 N. Quincy St.<br>Arlington, VA 22217-5000  |  | 8c. ADDRESS (City, State, and ZIP Code)<br>800 N. Quincy St.<br>Arlington, VA 22217-5000 |  |
| 8a. NAME OF FUNDING/SPONSORING ORGANIZATION<br>Office of Naval Research   |  | 8b. OFFICE SYMBOL<br>(If applicable)<br>code 1114SP                                      |  |
| 9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER<br>Grant No. N00014-87-J-1045   |  | 10. SOURCE OF FUNDING NUMBERS  |  |
| PROGRAM ELEMENT NO.<br>61153N   |  | PROJECT NO.<br>021   |  |
| TASK NO.<br>01  |  | WORK UNIT ACCESSION NO.<br>400d145dip01  |  |
| 11. TITLE (Include Security Classification)<br>Final Report ONR Grant N00014-87-J-1045 "Space Science Instrumentation" (U)  |  |  |  |
| 12. PERSONAL AUTHOR(S)<br>Dr. R. Holzworth  |  |  |  |
| 13a. TYPE OF REPORT<br>Final  |  | 13b. TIME COVERED<br>FROM 01 Oct 86 TO 30 Sep 88   |  |
| 14. DATE OF REPORT (Year, Month, Day)<br>89/3/15  |  | 15. PAGE COUNT<br>4  |  |
| 16. SUPPLEMENTARY NOTATION<br>This grant was a part of the DOD University Instrumentation Program.  |  |  |  |
| 17. COSATI CODES  |  | 18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)        |  |
| FIELD   |  | GROUP  |  |
| SUB-GROUP   |  | Plasma, Electric Field, charged particles, VLF waves                                     |  |
| 20  |  | 07   |  |
| 20  |  | 09   |  |
| 19. ABSTRACT (Continue on reverse if necessary and identify by block number)<br>This grant was used for the purchase of high quality laboratory and data analysis instrumentation for the pursuit of space plasma physics research. The basic capabilities of our laboratory have been greatly improved by these purchases. It can be categorically stated that every one of the separate research projects presently being conducted has benefitted directly from this new instrumentation. The total expenditures on instrumentation and the associated setup costs exceeded \$170,000 including the University of Washington matching funds. |  |  |  |
| 20. DISTRIBUTION/AVAILABILITY OF ABSTRACT<br><input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS   |  | 21. ABSTRACT SECURITY CLASSIFICATION<br>UNCLASSIFIED                                     |  |
| 22a. NAME OF RESPONSIBLE INDIVIDUAL<br>R. Gracen Joiner   |  | 22b. TELEPHONE (Include Area Code)<br>(202) 696-4203                                     |  |
| 22c. OFFICE SYMBOL<br>DNR code 1114SP   |  |  |  |

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UNIVERSITY OF WASHINGTON  
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**FINAL REPORT**  
**ONR Grant N00014-87-J-1045**  
**"Space Science Instrumentation"**

**Principal Investigator: Prof. R. H. Holzworth**

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| DTIC TAB           | <input type="checkbox"/>            |
| Unannounced        | <input type="checkbox"/>            |
| Justification      |                                     |
| By _____           |                                     |
| Distribution/      |                                     |
| Availability Codes |                                     |
| Dist               | Avail and/or<br>Special             |
| A-1                |                                     |

This grant was intended to be used for the purchase of high quality laboratory and data analysis instrumentation for the pursuit of space plasma physics research. To that end it has been extremely successful; the basic capability of our laboratory has been greatly improved by these purchases. It can be categorically stated that every one of the separate research projects presently being conducted has benefitted directly from this new instrumentation. This is certainly true for all space science projects in the department, but it is also true to a lesser extent for nearly all projects in Geophysics - especially (but not limited to) those requiring computer data analysis. A list of all major items purchased by the grant is included as Attachment A.

Two of the first purchases were a 6250 BPI magnetic tape drive and a large, fast disk drive. These improved our satellite data analysis capability greatly and reduced the system backup time. With the big disk drive it became possible to dump entire magnetic tapes to disk for faster, more efficient processing. The entire department has benefitted from these items.

At the desk-top level, we purchased several microcomputers which improve both personal computing as well as general connectivity within the group and on campus in general. Other microcomputers function in our laboratory setting by acting as hosts for several instrument interfaces for communication with satellite and balloon payloads as well as laboratory VLF signal processing equipment. Perhaps the single most expensive item purchased was an analog tape drive for reading and writing 16" analog magnetic tapes. This analog tape drive is used for the direct processing of FM and directly recorded telemetry data from our balloon and rocket payloads.

Major Equipment List for ONR N00014-87-J-1045  
(including UW matching)

|  |          |
|--|----------|
| 6250 BPI Kennedy Tape Drive<br>(1 year maintainence)                               | \$11,700 |
| Tektronics Spectrum Analyser (to 2.1 GHz)  | 10,466   |
| Data Tape 9000 Analog Tape Recorder<br>(7 Track, 14 inch instrumentation recorder) | 40,387   |
| Optical Monochrometer  | 8,092    |
| Rapid systems VLF spectrum analyser<br>(including VLF Filter (Kronhite))           | 4,689    |
| 400 MHz Oscilloscope Tek 2467<br>(including Microchannel plate)                    | 15,500   |
| 600 MByte geops disk drive<br>(including 1 year maintainence)                      | 11,329   |
| 3 PC/AT (clone) systems  |          |
| 3 ea Tandy 3000  | 11,973   |
| 3 ea PC-NFS  | 2,265    |
| 4 ea Transceivers  | 1,246    |
| 4ea cables   | 345      |
| 3 ea Vega Delux EGA  | 1,221    |
| 3ea NEC Multisync  | 1,934    |
| 3 ea MS Mouse  | 497      |
| extra memory for tandy   | 895      |

|  |       |
|--|-------|
| floppy disk                                | 159   |
| Apple Laser Printer                        | 3,841 |
| Zenith 181 portable computer               | 2,000 |
| Zenith XT Equivalent instrument controller | 1,500 |
| Zenith Graphics board Z29                  | 750   |
| Bell and Howell Color Slide Printer        | 3,000 |

(Not included:

Computer Software

Misc. supplies

engineering setup time

space instrumentation parts (<\$400 ea.)

Tax, shipping)

Total Expenditures (ONR grant plus matching): >\$170,000